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(54) Title: COSMETIC COMPOSITION COMPRISING HETERO POLYMERS AND A SOLID SUBSTANCE AND METHOD OF USING SAME

(57) Abstract: Structured compositions comprising at least one liquid fatty phase structured with at least one structuring polymer and at least one solid substance that has a melting point of about 45°C. This invention may be in the form of stable sticks and may give a non-migrating deposit when applied.

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COSMETIC COMPOSITION COMPRISING HETERO POLYMERS AND A SOLID SUBSTANCE AND METHOD OF USING SAME

The present invention relates to compositions and methods for care of, for treating and for making-up for the skin, including the scalp, and/or for the lips, of human beings, and/or for other keratinous materials, such as keratinous fibers, comprising at least one liquid fatty phase structured with at least one structuring polymer containing a hetero atom. This invention may be in the form of a stable composition.

Structured liquid fatty phases in cosmetic or dermatological products are known in the art. As used herein, "structured" means gelled and/or rigidified. Structured liquid fatty phases may be found in solid compositions such as deodorants, balms, lip compositions, concealer products, and cast foundations.

As used herein, "liquid fatty phase" means a fatty phase which is liquid at room temperature (25°C) and at atmospheric pressure (760 mmHg, i.e. 101 KPa) and which comprises at least one fatty substance, such as an oil, which is liquid at room temperature and not soluble in water. If the liquid fatty phase comprises two or more fatty substances, they should be mutually compatible, i.e. forming a homogeneous phase macroscopically.

Structured liquid fatty phases may make it possible to control the exudation of the liquid fatty phase from the solid compositions of which they are components, including exudation in a wet or hot atmosphere or environment. Structuring of the liquid fatty phase may also limit bleeding of this phase outside of the intended area of application and especially into wrinkles and fine lines after it has been deposited, for example, on keratinous material. As used herein, "keratinous material" is meant to comprise hair, lips, skin, scalp and superficial body growths such as eyelashes, eyebrows and nails. "Keratinous fiber" includes hair, eyelashes, and eyebrows. A large migration of a liquid fatty phase comprising coloring agents such as in lip or eyeshadow compositions may lead to an unaesthetic effect around the lips or eyes which may accentuate the wrinkles and fine lines. Consumers have cited this migration as a drawback of conventional lip and eyeshadow compositions.

U.S. 5,783,657, for example, describes structuring a composition by using a polyamide in a stick form. However, such a stick composition is usually not mechanically and/or thermally stable. Indeed, a part of the oil contained in such a composition tends to go outside or exude from the stick. Further, when the stick is applied on the skin or lips, said stick may be broken.

The inventors have found that the use of specific structuring polymers, defined more fully below, such as polyamide polymers, in at least one liquid fatty phase and the addition of a solid substance that has a melting point of about 45°C, for example about 47°C, or greater may make it possible to structure a composition comprising at least one liquid fatty phase while also resulting in a stable composition. As used herein, "about" before a number given as a melting point means the range or natural variation in the melting point. The range or variation may be due to impurities, crystallinity, and/or measurement method and conditions.

In one embodiment, the invention provides a composition comprising a liquid fatty phase which comprises: (i) at least one structuring polymer comprising a polymer skeleton which comprises at least one hydrocarbon-based repeating unit comprising at least one hetero atom; and (ii) at least one solid substance that has a melting point of about 45°C or greater, wherein the at least one solid substance is not stearalkonium hectorite, silica, talc, or paraffin wax. In a further embodiment, the at least one solid substance that has a melting point of about 45°C or greater is an organic solid substance.

As used herein, the expression "at least one" means one or more and thus includes individual components as well as mixtures/combinations.

In another embodiment, the invention provides a composition comprising a liquid fatty phase which comprises: (i) at least one structuring polymer, wherein said at least one structuring polymer is at least one polyamide polymer comprising a polymer skeleton which comprises at least one amide repeating unit; and (ii) at least one solid substance that has a melting point of 45°C or greater, wherein the at least one solid substance is not stearalkonium hectorite, silica, talc, or paraffin wax. In further embodiment, the at least one solid substance that has a melting point of about 45°C or greater is an organic solid substance.

In yet another embodiment, the invention provides an anhydrous composition comprising a liquid fatty phase which comprises: (i) at least one structuring polymer comprising a polymer skeleton which comprises at least one hydrocarbon-based repeating unit comprising at least one hetero atom; and (ii) at least one solid substance that has a melting point of about 45°C or greater, wherein the at least one solid substance is not stearalkonium hectorite.

The invention also provides a composition comprising at least one liquid fatty phase which comprises: (i) at least one structuring polymer comprising a polymer skeleton which comprises at least one hydrocarbon-based repeating

unit comprising at least one hetero atom; and at least one terminal fatty chain chosen from alkyl chains and alkenyl chains, wherein said at least one terminal fatty chain is bonded to said polymer skeleton via at least one linking group; and (ii) at least one solid substance that has a melting point of about 45°C or greater.

In one embodiment, the at least one structuring polymer is present in an amount effective to provide structure to said fatty phase. The at least one structuring polymer and the at least one solid substance are present in a combined amount to provide the composition with stability. In a further embodiment, the at least one structuring polymer and the at least one solid substance provide resistance to shear. In a further embodiment, the at least one structuring polymer and the at least one solid substance provide the composition with stability and provide resistance to shear.

The invention also provides a method for providing stability to a composition comprising a liquid fatty phase, comprising: including in said liquid fatty phase at least one structuring polymer comprising a polymer skeleton which comprises at least one hydrocarbon-based repeating unit comprising at least one hetero atom, such as a structuring polymer comprising a polyamide skeleton. For example, the polymer skeleton comprises at least one end group with at least one chain chosen from alkyl chains comprising at least four carbon atoms and alkenyl chains comprising at least four carbon atoms, bonded to the at least one polyamide skeleton via at least one linking group. The polymer skeleton may comprise at least one terminal group and/or at least one pendant group with at least one chain chosen from alkyl chains comprising at least four carbon atoms and alkenyl chains comprising at least four carbon atoms, bonded to any carbon or nitrogen of the polyamide skeleton via at least one linking group. The at least one structuring polymer is present in an amount effective to provide structure to said fatty phase. At least one solid substance that has a melting point of about 45°C, for example about 47°C, or greater is also included in the composition. The components may be added in any order. The at least one structuring polymer and the at least one solid substance are present in a combined amount effective to provide the composition with stability.

It is to be understood that both the foregoing general description and the following detailed description are exemplary and explanatory only and are not restrictive of the invention as claimed.

One subject of the invention is cosmetic and/or dermatological compositions which are useful for the care, make-up and/or treating of at least

one keratinous material, including at least one keratinous fiber, and nails which may be of suitable hardness to allow preparation of these compositions in the form of a stick or other structured form which may be stable.

As defined herein, stability is tested by placing the composition in a controlled environment chamber for 8 weeks at 25°C. In this test, the physical condition of the sample is inspected as it is placed in the chamber. The sample is then inspected again at 24 hours, 3 days, 1 week, 2 weeks, 4 weeks and 8 weeks. At each inspection, the sample is examined for abnormalities in the composition such as bending or leaning if the composition is in stick form, phase separation, melting, or syneresis. As used herein syneresis is the appearance of droplets on the surface of a composition that are visible to the naked eye. The stability is further tested by repeating the 8 week test at 4°C, 37°C, 45°C, 50°C and under freeze-thaw conditions. A composition is considered to lack stability if in any of these tests an abnormality that impedes functioning of the composition is observed. The skilled artisan will readily recognize an abnormality that impedes functioning of a composition based on the intended application.

The invention applies not only to make-up products for at least one keratinous material such as lip compositions, lip pencils, foundations including foundations which may be cast in the form of a stick or a dish, concealer products, temporary tattoo products, eyeliners, mascara bars, but also to body hygiene products such as deodorant sticks, and to care products and products for treating at least one keratinous material, such as sunscreen and anti-sun products which may be in stick form. The present invention may be in the form of mascara product including mascara bars, an eyeliner product, a foundation product, a lipstick product, a blush for cheeks or eyelids, a deodorant product, a make-up product for the body, a make-up-removing product, an eyeshadow product, a face powder product, a concealer product, a treating shampoo product, a nail varnish, a hair conditioning product, a sun screen, colorant for the skin or hair, or skin care formula such as, for example, anti-pimple or shaving cut formulas. As defined herein, a deodorant product is a personal hygiene product and does not relate to care, make-up or treatment of keratin materials, including keratin fibers and nails.

For example, the composition of the present invention may be in a form chosen from a paste, a solid, a gel, and a cream. It may be an emulsion, *i.e.*, an oil-in-water or water-in-oil emulsion, a multiple emulsion, *e.g.*, an oil-in-water-in-oil emulsion or water-in-oil-in-water emulsion, or a solid, rigid or supple gel, including anhydrous gels. In one embodiment, the composition of

the invention is anhydrous. The composition of the invention may, for example, comprise an external or continuous fatty phase. In another embodiment, the composition of the invention is transparent or clear, including for example, a composition without pigments. The composition can also be in a form chosen from a translucent anhydrous gel and a transparent anhydrous gel. The composition can also be a molded composition or cast as a stick or a dish. The composition in one embodiment is a solid such as a molded stick or a poured stick.

The structuring of the liquid fatty phase can be modified according to the nature of the polymer containing a hetero atom and of the solid substance used, and may be such that a rigid structure in the form of a rod or stick with good mechanical strength is obtained. When these rods or sticks are colored, they may make it possible, after application, to obtain a uniformly colored glossy deposit which does not migrate and which has good staying power or long-wearing properties, in particular of the color, over time. The composition may contain at least one structuring polymer and at least one solid substance.

In one embodiment, the composition of the invention is a composition for the lips such as a lipstick composition, *e.g.*, in stick form.

Structuring polymer

In one embodiment, the at least one structuring polymer in the composition of the invention is a solid that is not deformable at room temperature (25°C) and atmospheric pressure (760 mmHg, *i.e.* 101 KPa). In a further embodiment, the at least one structuring polymer is capable of structuring the composition without opacifying it. The inventors think that is due to the fact that the polymer does not crystallize. Moreover, the structuration of the liquid phase is due to hydrogen interactions between two molecules of polymer and/or between the polymer and the liquid fatty phase. As defined above, the at least one structuring polymer of the present invention comprises a polymer skeleton comprising at least one hydrocarbon-based repeating unit comprising at least one hetero atom. In one embodiment, the at least one structuring polymer further comprises at least one terminal fatty chain chosen from alkyl and alkenyl chains, such as of at least 4 atoms, and further such as comprising 8 to 120 carbon atoms, bonded to the polymer skeleton via at least one linking group. The terminal fatty chain may, for example, be functionalized. The at least one structuring polymer may also further comprise at least one pendant fatty chain chosen from alkyl and alkenyl chains, such as of at least 4 atoms, and further such as comprising 8 to 120 carbon atoms, bonded to any carbon or hetero atom of the polymer skeleton

via at least one linking group. The pendant fatty chain may, for example, be functionalized. The at least one structuring polymer may comprise both at least one pendant fatty chain and at least one terminal fatty chain as defined above, and one or both types of chains can be functionalized.

In one embodiment, the structuring polymer comprises at least two hydrocarbon-based repeating units. As a further example, the structuring polymer comprises at least three hydrocarbon-based repeating units and as an even further example, the at least three repeating units are identical.

As used herein, "functionalized" means comprising at least one functional group. Non-limiting examples of functional groups include hydroxyl groups, ether groups, oxyalkylene groups, polyoxyalkylene groups, carboxylic acid groups, amine groups, amide groups, halogen containing groups, including fluoro and perfluoro groups, halogen atoms, ester groups, siloxane groups and polysiloxane groups.

For purposes of the invention, the expression "functionalized chain" means, for example, an alkyl chain comprising at least one functional (reactive) group chosen, for example, from those recited above. For example, in one embodiment, the hydrogen atoms of at least one alkyl chain may be substituted at least partially with fluorine atoms.

According to the invention, these chains may be linked directly to the polymer skeleton or via an ester function or a perfluoro group.

For the purposes of the invention, the term "polymer" means a compound containing at least 2 repeating units, such as, for example, a compound containing at least 3 repeating units, which may be identical.

As used herein, the expression "hydrocarbon-based repeating unit" includes a repeating unit comprising from 2 to 80 carbon atoms, such as, for example, from 2 to 60 carbon atoms. The at least one hydrocarbon-based repeating unit may also comprise oxygen atoms. The hydrocarbon-based repeating unit may be chosen from saturated and unsaturated hydrocarbon-based repeating units which in turn may be chosen from linear hydrocarbon-based repeating units, branched hydrocarbon-based repeating units and cyclic hydrocarbon-based repeating units. The at least one hydrocarbon-based repeating unit may comprise, for example, at least one hetero atom that is part of the polymer skeleton, *i.e.*, not pendant. The at least one hetero atom may be chosen, for example, from nitrogen, sulphur, and phosphorus. For example, the at least one hetero atom may be a nitrogen atom, such as a non-pendant nitrogen atom. In another embodiment, the at least one hydrocarbon-based repeating unit may comprise at least one hetero atom with

the proviso that the at least one hetero atom is not nitrogen. In another embodiment, the at least one hetero atom is combined with at least one atom chosen from oxygen and carbon to form a hetero atom group. In one embodiment, the hetero atom group comprises a carbonyl group.

The at least one repeating unit comprising at least one hetero atom may be chosen, for example, from amide groups, carbamate groups, and urea groups. In one embodiment, the at least one repeating unit comprises amide groups forming a polyamide skeleton. In another embodiment, the at least one repeating unit comprises carbamate groups and/or urea groups forming a polyurethane skeleton, a polyurea skeleton and/or a polyurethane-polyurea skeleton. The pendant chains, for example, can be linked directly to at least one of the hetero atoms of the polymer skeleton. In yet another embodiment, the at least one hydrocarbon-based repeating unit may comprise at least one hetero atom group with the proviso that the at least one hetero atom group is not an amide group. In one embodiment, the polymer skeleton comprises at least one repeating unit chosen from silicone units and oxyalkylene units, the at least one repeating unit being between the hydrocarbon-based repeating units.

In one embodiment, the composition of the invention comprises at least one structuring polymer with nitrogen atoms, such as amide, urea, or carbamate units, such as amide units, and at least one polar oil.

In one embodiment, in the at least one structuring polymer, the percentage of the total number of fatty chains ranges from 40% to 98% relative to the total number of repeating units and fatty chains, and as a further example, from 50% to 95%. In a further embodiment wherein the polymer skeleton is a polyamide skeleton, in the at least one structuring polymer, the percentage of the total number of fatty chains ranges from 40% to 98% relative to the total number of all amide units and fatty chains, and as a further example, from 50% to 95%.

In a further embodiment, the nature and proportion of the at least one hydrocarbon-based repeating unit comprising at least one hetero atom depends on the nature of a liquid fatty phase of the composition and is, for example, similar to the nature of the fatty phase. For example, not to be limited as to theory, the more polar the hydrocarbon-based repeating units containing a hetero atom, and in high proportion, which corresponds to the presence of several hetero atoms, the greater the affinity of the at least one structuring polymer to polar oils. Conversely, the more non-polar, or even apolar, and lesser in proportion the hydrocarbon-based repeating units

containing a hetero atom, the greater the affinity of the polymer for apolar oils.

In another embodiment, the invention is drawn to a structured composition containing at least one liquid fatty phase structured with at least one structuring polymer, wherein the at least one structuring polymer is a polyamide comprising a polymer skeleton comprising at least one amide repeating unit and optionally at least one pendant fatty chain and/or at least one terminal chain that are optionally functionalized and comprise from 8 to 120 carbon atoms, bonded to at least one of the amide repeating units via at least one linking group. The liquid fatty phase further contains at least one solid substance for hardening the liquid fatty phase. The at least one liquid fatty phase, the at least one structuring polyamide and the at least one solid substance together form a physiologically acceptable medium.

When the structuring polymer has amide repeating units, the pendant fatty chains may be linked to at least one of the nitrogen atoms in the amide repeating units.

The structuring polymer, for example the polyamide polymer, may have a weight-average molecular mass of less than 100,000, such as less than 50,000. In another embodiment, the weight-average molecular mass may range from 1000 to 30,000, such as from 2000 to 20,000, further such as from 2000 to 10,000.

However, this weight-average molecular mass can be present up to 500 000 and even up to 1 000 000.

The structuring polymer, as for example the polyamide polymer, is non soluble in water or in an aqueous phase. In another embodiment the structuring polymer has non ionic group.

As discussed, the at least one structuring polymer may, for example, be chosen from polyamide polymers. A polyamide polymer may comprise, for example, a polymer skeleton which comprises at least one amide repeating unit, *i.e.*, a polyamide skeleton. In one embodiment, the polyamide skeleton may further comprise at least one terminal fatty chain chosen from alkyl chains, for example, alkyl chains comprising at least four carbon atoms, and alkenyl chains, for example, alkenyl chains comprising at least four carbon atoms, bonded to the at least one polyamide skeleton via at least one linking group, and/or at least one pendant fatty chain chosen from alkyl chains, for example, alkyl chains comprising at least four carbon atoms, and alkenyl chains, for example, alkenyl chains comprising at least four carbon atoms, bonded to the at least one polyamide skeleton via at least one linking group. In one embodiment, the polyamide skeleton may comprise at least one

terminal fatty chain chosen from fatty chains comprising 8 to 120 carbon atoms, such as, for example, 12 to 68 carbon atoms, bonded to the at least one polyamide skeleton via at least one linking group and/or at least one pendant fatty chain chosen from fatty chains comprising 8 to 120 carbon atoms, such as, for example, 12 to 68 carbon atoms, bonded to the at least one polyamide skeleton via at least one linking group, such as bonded to any carbon or nitrogen of the polyamide skeleton via the at least one linking group. In one embodiment, the at least one linking group is chosen from single bonds and urea, urethane, thiourea, thiourethane, thioether, thioester, ester, ether and amine groups. The bond is, for example, an ester bond. In one embodiment, these polymers comprise a fatty chain at each end of the polymer skeleton, such as the polyamide skeleton.

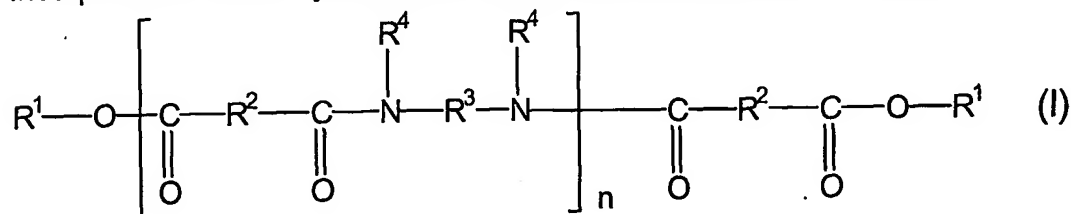
In one embodiment, due to the presence of at least one chain, the polyamide polymers may be readily soluble in oils (*i.e.*, water-immiscible liquid compounds) and thus may give macroscopically homogeneous compositions even with a high content (at least 25%) of the polyamide polymers, unlike certain polymers of the prior art that do not contain such alkyl or alkenyl chains at the end of the polyamide skeleton. As defined herein, a composition is soluble if it has a solubility of greater than 0.01 g per 100 ml of solution at 25°C.

In a further embodiment, the polyamide polymers can be chosen from polymers resulting from at least one polycondensation reaction between at least one acid chosen from dicarboxylic acids comprising at least 32 carbon atoms, such as 32 to 44 carbon atoms, and at least one amine chosen from diamines comprising at least 2 carbon atoms, such as from 2 to 36 carbon atoms, and triamines comprising at least 2 carbon atoms, such as from 2 to 36 carbon atoms. The at least one dicarboxylic acids can, for example, be chosen from dimers of at least one fatty acid comprising at least 16 carbon atoms, such as oleic acid, linoleic acid and linolenic acid. The at least one amine can, for example, be chosen from diamines, such as ethylenediamine, hexylenediamine, hexamethylenediamine, phenylenediamine and triamines, such as ethylenetriamine.

The polyamide polymers may also be chosen from polymers comprising at least one terminal carboxylic acid group. The at least one terminal carboxylic acid group can, for example, be esterified with at least one alcohol chosen from monoalcohols comprising at least 4 carbon atoms. For example, the at least one alcohol can be chosen from monoalcohols comprising from 10 to 36 carbon atoms. In a further embodiment, the monoalcohols can comprise from

12 to 24 carbon atoms, such as from 16 to 24 carbon atoms, and for example 18 carbon atoms.

In one embodiment, the at least one polyamide polymer may be chosen from those described in U.S. Patent No. 5,783,657, the disclosure of which is incorporated herein by reference, which are polymers of formula (I):



in which:

- n is an integer which represents the number of amide units such that the number of ester groups present in said at least one polyamide polymer ranges from 10% to 50% of the total number of all said ester groups and all said amide groups comprised in said at least one polyamide polymer;
- R^1 , which are identical or different, are each chosen from alkyl groups comprising at least 4 carbon atoms and alkenyl groups comprising at least 4 carbon atoms. In one embodiment, the alkyl group comprises from 4 to 24 carbon atoms and the alkenyl group comprises from 4 to 24 carbon atoms;
- R^2 , which are identical or different, are each chosen from C_4 to C_{42} hydrocarbon-based groups with the proviso that at least 50% of all R^2 are chosen from C_{30} to C_{42} hydrocarbon-based groups;
- R^3 , which are identical or different, are each chosen from organic groups comprising atoms chosen from carbon atoms, hydrogen atoms, oxygen atoms and nitrogen atoms with the proviso that R^3 comprises at least 2 carbon atoms; and
- R^4 , which are identical or different, are each chosen from hydrogen atoms, C_1 to C_{10} alkyl groups and a direct bond to at least one group chosen from R^3 and another R^4 such that when said at least one group is chosen from another R^4 , the nitrogen atom to which both R^3 and R^4 are bonded forms part of a heterocyclic structure defined in part by R^4-N-R^3 , with the proviso that at least 50% of all R^4 are chosen from hydrogen atoms.

In one embodiment, the at least one terminal fatty chain of formula (I) is linked to the last hetero atom, in this case nitrogen, of the polyamide skeleton. In a further embodiment, the terminal chains are functionalized. In another embodiment, the ester groups of formula (I), are linked to the terminal and/or pendant fatty chains, represent from 15% to 40% of the total number of ester and amide groups (i.e. heteroatom groups), such as, for example, from 20% to 35%.

In one embodiment, n may be an integer ranging from 1 to 10, for example 1 to 5, and as a further example, an integer ranging from 3 to 5. In the present invention, R^1 , which are identical or different, can, for example, each be chosen from C_{12} to C_{22} alkyl groups, such as from C_{16} to C_{22} alkyl groups.

In the present invention, R^2 , which are identical or different, can, for example, each be chosen from C_{10} to C_{42} alkyl groups. At least 50% of all R^2 , which are identical or different, can, for example, each be chosen from groups comprising from 30 to 42 carbon atoms. At least 75% of all R^2 , which are identical or different, can, for example, each be chosen from groups comprising from 30 to 42 carbon atoms. In the two aforementioned embodiments, the remaining R^2 , which are identical or different, can, for example, each be chosen from C_4 to C_{19} groups, such as C_4 to C_{12} groups.

R^3 , which can be identical or different, can, for example, each be chosen from C_2 to C_{36} hydrocarbon-based groups and polyoxyalkylene groups. In another example, R^3 , which can be identical or different, can each, for example, be chosen from C_2 to C_{12} hydrocarbon-based groups. In another embodiment, R^4 , which can be identical or different, can each be chosen from hydrogen atoms.

As used herein, hydrocarbon-based groups may be chosen from linear, cyclic and branched, and saturated and unsaturated groups. The hydrocarbon-based groups can be chosen from aliphatic and aromatic groups. In one example, the hydrocarbon-based groups are chosen from aliphatic groups. The alkyl and alkylene groups may be chosen from linear, cyclic and branched, and saturated and unsaturated groups.

In general, the pendant and terminal fatty chains may be chosen from linear, cyclic and branched, and saturated and unsaturated groups. The pendant and terminal fatty chains can be chosen from aliphatic and aromatic groups. In one example, the pendant and terminal fatty chains are chosen from aliphatic groups.

According to the invention, the structuring of the liquid fatty phase is obtained with the aid of at least one structuring polymer, such as the at least one polymer of formula (I). The at least one polyamide polymer of formula (I) may, for example, be in the form of a mixture of polymers, and this mixture may also comprise a compound of formula (I) wherein n is equal to zero, *i.e.*, a diester.

Non-limiting examples of at least one polyamide polymer which may be used in the composition according to the present invention include the commercial products sold or made by Arizona Chemical under the names

Uniclear 80 and Uniclear 100. These are sold, respectively, in the form of an 80% (in terms of active material) gel in a mineral oil and a 100% (in terms of active material) gel. These polymers have a softening point ranging from 88°C to 94°C, and may be mixtures of copolymers derived from monomers of (i) C₃₆ diacids and (ii) ethylenediamine, and have a weight-average molecular mass of about 6000. Terminal ester groups result from esterification of the remaining acid end groups with at least one alcohol chosen from cetyl alcohol and stearyl alcohol. A mixture of cetyl and stearyl alcohols is sometimes called cetylstearyl alcohol.

Other non-limiting examples of at least one polyamide polymer which may be used in the composition according to the present invention include polyamide polymers (or polyamide resins) resulting from the condensation of at least one aliphatic dicarboxylic acid and at least one diamine, the carbonyl and amine groups being condensed via an amide bond. Examples of these polyamide polymers are those sold or made under the brand name Versamid by the companies General Mills Inc. and Henkel Corp. (Versamid 930, 744 or 1655) or by the company Olin Mathieson Chemical Corp. under the brand name Onamid, in particular Onamid S or C. These resins have a weight-average molecular mass ranging from 6000 to 9000. For further information regarding these polyamides, reference may be made to U.S. Patent Nos. 3,645,705 and 3,148,125, the disclosures of which are hereby incorporated by reference.

Other examples of polyamides include those sold by the company Arizona Chemical under the references Uni-Rez (2658, 2931, 2970, 2621, 2613, 2624, 2665, 1554, 2623 and 2662) and the product sold or made under the reference Macromelt 6212 by the company Henkel. For further information regarding these polyamides, reference may be made to U.S. Patent No. 5,500,209, the disclosure of which is hereby incorporated by reference. Such polyamides display high melt viscosity characteristics. MACROMELT 6212, for example, has a high melt viscosity at 190°C of 30-40 poise (as measured by a Brookfield Viscometer, Model RVF #3 spindle, 20 RPM).

In a further embodiment, the at least one polyamide polymer may be chosen from polyamide resins from vegetable sources. Polyamide resins from vegetable sources may be chosen from, for example, the polyamide resins of U.S. Patent Nos. 5,783,657 and 5,998,570, the disclosures of which are herein incorporated by reference.

The at least one structuring polymer in the composition of the invention may have a softening point greater than 50°C, such as from 65°C to 190°C,

and preferably less than 150°C, and further such as from 70°C to 130°C, and even further such as from 80°C to 105°C. This softening point may be lower than that of structuring polymers used in the art which may facilitate the use of the at least one structuring polymer of the present invention and may limit the degradation of the liquid fatty phase. These polymers may be non waxy polymers. The softening point can be measured by a well known method as "Differential Scanning Calorimetry (i.e. DSC method) with a temperature rise of 5 to 10°C/min.

In one embodiment, the at least one polyamide polymer may be present in the composition in an amount ranging, for example, from 0.5% to 80%, such as from 2% to 60%, further such as from 5% to 40%, by weight relative to the total weight of the composition. In a further embodiment the at least one polyamide polymer may be present in the composition in an amount ranging, for example, from 5% to 25% by weight relative to the total weight of the composition.

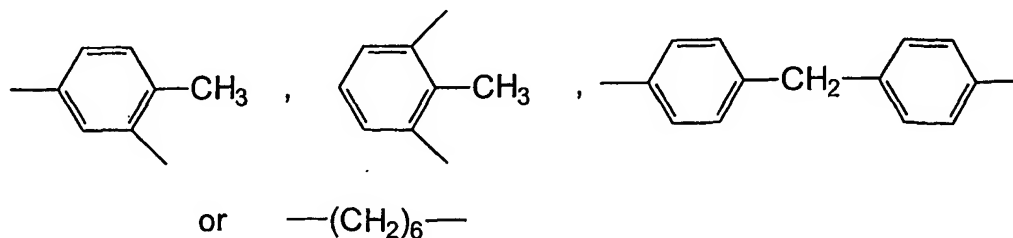
In one embodiment, the at least one structuring polymer in the composition according to the invention corresponds to the polyamide polymers of formula (I). Due to fatty chain(s), these polymers may be readily soluble in oils and thus lead to compositions that are macroscopically homogeneous even with a high content (at least 25%) of at least one structuring polymer.

In one embodiment, when the at least one structuring polymer of the present invention comprises a urea urethane having the following formula :

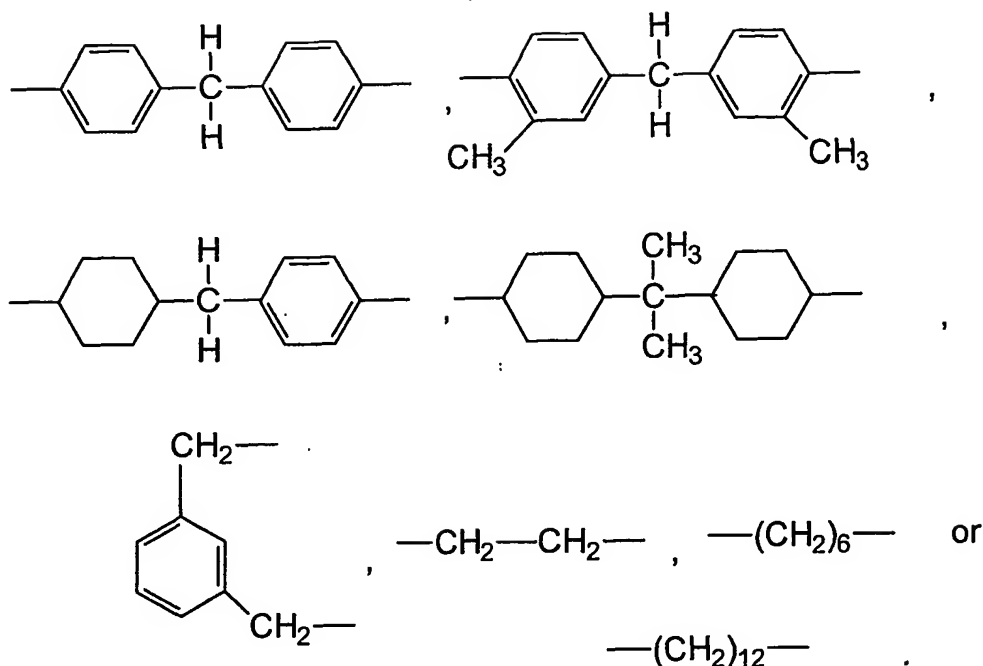


then R represents $\text{C}_n\text{H}_{2n+1}-$, wherein n represents an integer having a value greater than 22, for example from 23 to 120, and further, for example, from 23 to 68, or $\text{C}_m\text{H}_{2m+1}(\text{OC}_p\text{H}_{2p})_r-$, wherein m represents an integer having a value of greater than 18, for example, from 19 to 120, and further, for example, from 23 to 68, p represents an integer having a value of from 2 to 4, and r represents an integer having a value of from 1 to 10.,

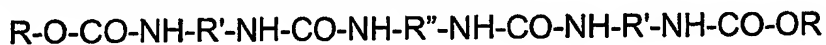
R' represents:



and R'' represents :

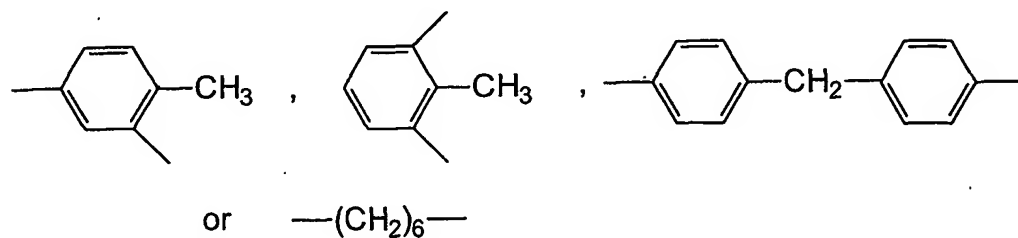


In another embodiment of the invention, the at least one structuring polymer is not a urea urethane of the formula:

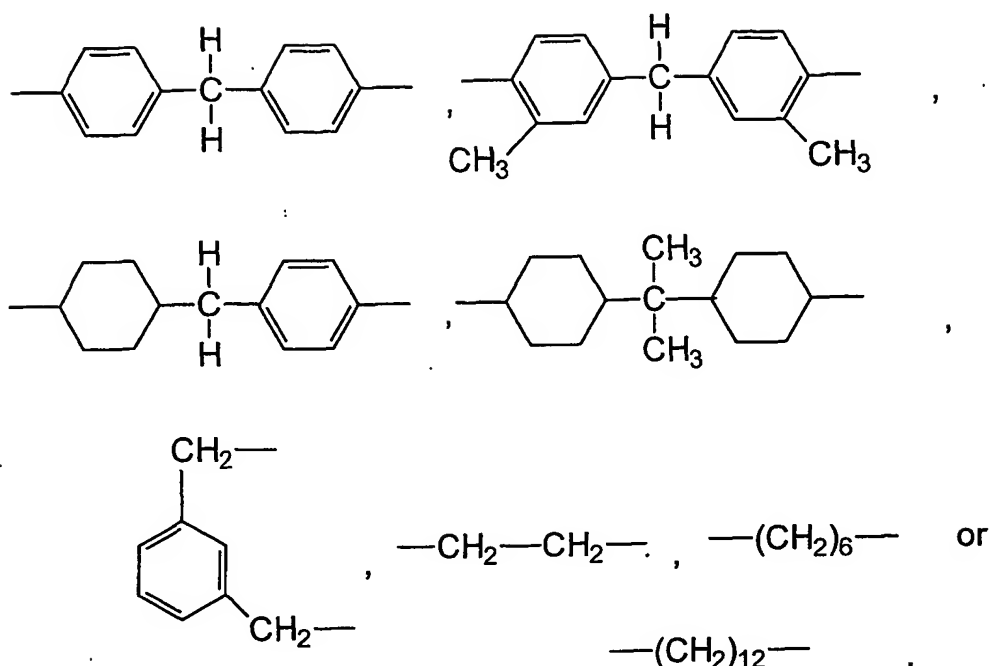


wherein R represents $C_nH_{2n+1}-$ or $C_mH_{2m+1}(C_pH_{2p}O)_r-$; n represents an integer having a value of from 4 to 22; m represents an integer having a value of from 1 to 18; p represents an integer having a value of from 2 to 4; and r represents an integer having a value of from 1 to 10.

R' represents :



and R'' represents :



In another embodiment, the present invention is drawn to a structured composition comprising at least one solid substance that has a melting point of about 45°C, for example about 47°C, or greater, and at least one liquid fatty phase structured with at least one structuring polymer comprising a polymer skeleton comprising at least one hydrocarbon-based repeating unit comprising at least one hetero atom, wherein the at least one structuring polymer further comprises at least one terminal fatty chain, optionally functionalized, chosen from alkyl chains and alkenyl chains, wherein said at least one terminal fatty chain is bonded to said polymer skeleton via at least one linking group chosen from amides, ureas, and esters, wherein when said at least one linking group is chosen from esters, said at least one terminal fatty chain is chosen from branched alkyl groups. The at least one structuring polymer may also comprise at least one pendant fatty chain, optionally functionalized, chosen from alkyl chains and alkenyl chains, bonded to any carbon or hetero atom of the polymer skeleton via at least one linking group chosen from amides, ureas, and esters, wherein when said at least one linking group is chosen from esters, said at least one pendant fatty chain is chosen from branched alkyl groups. The at least one structuring polymer may comprise both at least one pendant fatty chain and at least one terminal fatty chain as defined above in this paragraph.

Further, an embodiment of the invention relates to a skin lip, or keratinous fiber care or make-up composition comprising a structured composition containing at least one liquid fatty phase structured with at least one structuring polymer comprising a polymer skeleton comprising at least one

hydrocarbon-based repeating unit comprising at least one hetero atom and at least one solid substance that has a melting point of about 45°C, for example about 47°C, or greater. In another embodiment, the invention relates to a lipstick composition in stick form comprising at least one continuous liquid fatty phase, at least one solid substance that has a melting point of about 45°C, for example, about 47°C or greater, and at least one non-waxy structuring polymer having a weight-average molecular mass of less than 100,000.

Additionally, an embodiment of the invention relates to a skin, lip, or keratinous fiber care or make-up composition comprising a structured composition containing at least one liquid fatty phase structured with at least one structuring polymer comprising a polymer skeleton comprising at least one hydrocarbon-based repeating unit comprising at least one hetero atom, at least one solid substance that has a melting point of about 45°C, for example about 47°C, or greater, and at least one coloring agent.

Additionally, an embodiment of the invention relates to a method of making up skin, lips, or keratinous fibers or caring for skin, lips, or keratinous fibers comprising applying to said skin, lips, or keratinous fibers a structured composition containing at least one liquid fatty phase structured with at least one structuring polymer comprising a polymer skeleton comprising at least one hydrocarbon-based repeating unit comprising at least one hetero atom, and at least one solid substance that has a melting point of about 45°C, for example about 47°C, or greater.

Solid Substance with a Melting Point of about 45°C or Greater

As defined here, a solid substance having a melting point of about 45°C or greater is a compound that is a solid at room temperature (25°C) and undergoes a reversible solid/liquid change of state at about 45°C, for example about 47°C, or greater, and at atmospheric pressure (760 mmHg, i.e. 101KPa). The at least one solid substance may, for example, have a melting point of about 50°C or greater. In one embodiment, the at least one solid substance is an organic solid substance having a melting point of about 45°C, for example about 47°C, or greater.

Such compounds are rheological agents, for example non tinted rheological agents. Such compounds include, but are not limited to, waxes, fillers, glitters, and solid polymers. In one embodiment, a filler is chosen from powders, polyamide (Nylon®), polymethylthacrylate (PMMA) crosspolymers, and silicas. In a further embodiment, the solid substance has a melting point of about 50°C to about 250°C, such as from about 60°C to about 200°C. A

solid substance for use in the practice of the invention may comprise at least one crystallizable portion, however crystallization is not a limitation. The melting point is measured by DSC (Differential Scanning Calorimetry) with a rate of increase in temperature of 5°C or 10°C per minute. The melting point corresponds to the peak of the DSC curve.

In one embodiment, the solid substance is a wax. As used herein, a "wax" may be any lipophilic fatty compound. It may be possible to make a wax miscible with oils by bringing the wax to its melting point, and, thereby, to form a microscopically homogeneous mixture, but once the mixture has returned to room temperature, recrystallization of the wax occurs.

For the purposes of the invention, waxes may be chosen from any wax that meets the criteria described herein. Non-limiting examples of such waxes include waxes of natural origin, such as beeswax, carnauba wax, candelilla wax, ouricury wax, Japan wax, cork fiber wax, sugar cane wax, paraffin waxes, lignite wax, microcrystalline waxes, lanolin wax, montan wax and ozokerites, hydrogenated oils such as hydrogenated jojoba oil, waxes of synthetic origin, such as polyethylene waxes derived from polymerization or copolymerization of ethylene, waxes obtained by Fischer-Tropsch synthesis, tetrastearate di-(trimethylol-1,1,1 propane) as the one sold or made under the name HEST 2T-4S by Heterene, fatty acid esters and glycerides, and silicone waxes, such as derivatives of poly(di)methylsiloxane, including esterified silicon waxes.

For the purposes of the invention, solid polymer serving as rheological agent is any lipophilic polymeric fatty compound. It may be possible to make a solid polymer miscible with oils by bringing the solid polymer to its melting point, and, thereby, to form a microscopically homogeneous mixture, but once the mixture has returned to room temperature, solidification of the mixture (solid polymer + oils) occurs for example by recrystallization of the solid polymer.

In one embodiment, the solid polymer serving as rheological agent is an organic semi-crystallized polymer comprising a) a polymeric skeleton and b) at least one organic crystallizable side-chain or at least one organic crystallizable sequence which is a part of said skeleton. In one embodiment, this solid polymer has a weight-average molecular mass more than 2 000 and less than 100 000. For example, this solid polymer has a weight-average molecular mass from 4 000 to 99 000.

In one embodiment, the solid polymer serving as rheological agent is chosen from homopolymers or copolymers having at least one side-chain

crystallizable, such as those disclosed in the US patent n° 5 156 911, disclosure of which is herein incorporated by reference.

The concentrations of the at least one solid substance and of the at least one structuring polymer may be chosen according to the desired hardness and desired stability of the compositions and according to the specific application envisaged. The respective concentrations of the at least one structuring polymer and of the at least one solid substance can be such that a disintegrable solid which does not flow under its own weight is obtained.

Depending on the intended application, such as a stick, hardness of the composition may also be considered. The hardness of a composition may, for example, be expressed in grams (g). The composition of the present invention may, for example, have a hardness ranging from 20 gf to 2000 gf, such as from 20 gf to 900 gf, and further such as from 20 gf to 600 gf.

This hardness is measured in one of two ways. A first test for hardness is according to a method of penetrating a probe into said composition and in particular using a texture analyzer (for example TA-XT2i from Rhéo) equipped with an ebonite cylinder of height 25 mm and diameter 8 mm. The hardness measurement is carried out at 20°C at the center of 5 samples of said composition. The cylinder is introduced into each sample of composition at a pre-speed of 2 mm/s and then at a speed of 0.5 mm/s and finally at a post-speed of 2 mm/s, the total displacement being 1 mm. The recorded hardness value is that of the maximum peak observed. The measurement error is \pm 50gf.

The second test for hardness is the "cheese wire" method OSI which involves cutting an 8.1 mm or preferably 12.7 mm in diameter of composition and measuring its hardness at 20°C using a DFGHS 2 tensile testing machine from Indelco-Chatillon Co. at a speed of 100 mm/minute. The hardness value from this method is expressed in grams as the shear force required to cut a stick under the above conditions. According to this method, the hardness of compositions according to the present invention which may be in stick form may, for example, range from 30 gf to 300 gf, such as from 30 gf to 250 gf, and further such as from 30 gf to 200 gf.

The hardness of the composition of the present invention may be such that the compositions are self-supporting and can easily disintegrate to form a satisfactory deposit on a keratinous material. In addition, this hardness may impart good impact strength to the inventive compositions which may be molded or cast, for example, in stick or dish form.

The skilled artisan may choose to evaluate a composition using at least one of the tests for hardness outlined above based on the application envisaged and the hardness desired. If one obtains an acceptable hardness value, in view of the intended application, from at least one of these hardness tests, the composition falls within the scope of the invention.

According to the present invention, the compositions in stick form may also possess the properties of deformable, flexible elastic solids and may also have noteworthy elastic softness upon application to a keratinous material. The compositions in stick form of the prior art do not have this elasticity and flexibility.

The at least one structuring polymer may be present in a concentration ranging from 0.5% to 80% by weight of the total weight of the composition, such as from 5% to 40%. The at least one solid substance may be present in a concentration of at least 3% by weight of the total weight of the composition, such as, for example, greater than 5%; further examples include from 5% to 70% by weight of the total weight of the composition, from 10% to 60% and from 10% to 50%.

Liquid fatty phase

The at least one liquid fatty phase, in one embodiment, may comprise at least one oil. In one embodiment, at least one oil has an affinity with the structuring polymer and/or with the solid substance. The at least one oil, for example, may be chosen from polar oils and apolar oils including hydrocarbon-based liquid oils and oily liquids at room temperature. In one embodiment, the composition of the invention comprises at least one structuring polymer and at least one polar oil. The polar oils of the invention, for example, may be added to the apolar oils, the apolar oils acting in particular as co-solvent for the polar oils.

According to the invention, the structuring of the at least one liquid fatty phase may, for example, be obtained with the aid of at least one polymer of formula (I). In general, the polymers of formula (I) may be in the form of mixtures of polymers, these mixtures also possibly containing a synthetic product corresponding to a compound of formula (I) in which n is 0, *i.e.*, a diester.

The liquid fatty phase of the composition may contain more than 30%, for example, more than 40%, of liquid oil(s) containing a group similar to that of the units containing a hetero atom of the structuring polymer, and for example from 50% to 100%. In one embodiment, the liquid fatty phase structured with a polyamide-type skeleton contains a high quantity, *i.e.*, greater than 30%, for

example greater than 40% relative to the total weight of the liquid fatty phase, or from 50% to 100%, of at least one apolar, such as hydrocarbon-based, oil. For the purposes of the invention, the expression "hydrocarbon-based oil" means an oil essentially comprising carbon and hydrogen atoms, optionally with at least one group chosen from hydroxyl, ester, carboxyl, or ether groups.

For a liquid fatty phase structured with a polymer containing a partially silicone-based skeleton, this fatty phase may contain more than 30%, for example, more than 40%, relative to the total weight of the liquid fatty phase and, for example, from 50% to 100%, of at least one silicone-based liquid oil, relative to the total weight of the liquid fatty phase.

For a liquid fatty phase structured with an apolar polymer of the hydrocarbon-based type, this fatty phase may contain more than 30%, for example more than 40% by weight, or from 50% to 100% by weight, of at least one liquid apolar, such as hydrocarbon-based, oil, relative to the total weight of the liquid fatty phase.

For example, the at least one polar oil useful in the invention may be chosen from:

- hydrocarbon-based plant oils with a high content of triglycerides comprising fatty acid esters of glycerol in which the fatty acids may have varied chain lengths from C₄ to C₂₄, these chains possibly being chosen from linear and branched, and saturated and unsaturated chains; these oils are chosen from, for example, wheat germ oil, corn oil, sunflower oil, karite butter, castor oil, sweet almond oil, macadamia oil, apricot oil, soybean oil, cotton oil, alfalfa oil, poppy oil, pumpkin oil, sesame oil, marrow oil, rapeseed oil, avocado oil, hazelnut oil, grape seed oil, blackcurrant seed oil, evening primrose oil, millet oil, barley oil, quinoa oil, olive oil, rye oil, safflower oil, candlenut oil, passion flower oil and musk rose oil; or alternatively caprylic/capric acid triglycerides such as those sold by Stearineries Dubois or those sold under the names Miglyol 810, 812 and 818 by Dynamit Nobel;
- synthetic oils or esters of formula R₅COOR₆ in which R₅ is chosen from linear and branched fatty acid residues containing from 1 to 40 carbon atoms and R₆ is chosen from, for example, a hydrocarbon-based chain containing from 1 to 40 carbon atoms, on condition that $R_5 + R_6 \geq 10$, such as, for example, purcellin oil (cetostearyl octanoate), isononyl isononanoate, C₁₂-C₁₅ alkyl benzoates, isopropyl myristate, 2-ethylhexyl palmitate, isostearyl isostearate and alkyl or polyalkyl octanoates, decanoates or ricinoleates; hydroxylated esters such as isostearyl lactate and diisostearyl malate; and pentaerythritol esters;

- synthetic ethers containing from 10 to 40 carbon atoms;
- C₈ to C₂₆ fatty alcohols such as oleyl alcohol; and
- C₈ to C₂₆ fatty acids such as oleic acid, linolenic acid or linoleic acid.

The at least one apolar oil according to the invention is chosen from, for example, silicone oils chosen from volatile and non-volatile, linear and cyclic polydimethylsiloxanes (PDMSs) that are liquid at room temperature; polydimethylsiloxanes comprising alkyl or alkoxy groups which are pendant and/or at the end of the silicone chain, the groups each containing from 2 to 24 carbon atoms; phenylsilicones such as phenyl trimethicones, phenyl dimethicones, phenyl trimethylsiloxy diphenylsiloxanes, diphenyl dimethicones, diphenyl methyl diphenyl trisiloxanes and 2-phenylethyl trimethylsiloxysilicates; hydrocarbons chosen from linear and branched, volatile and non-volatile hydrocarbons of synthetic and mineral origin, such as volatile liquid paraffins (such as isoparaffins and isododecane) or non-volatile liquid paraffins and derivatives thereof, liquid petrolatum, liquid lanolin, polydecenes, hydrogenated polyisobutene such as hydrogenated polybutene, e.g., Parleam® from Nippon Oil Fats and squalane; and mixtures thereof. The structured oils, for example those structured with polyamides such as those of formula (I) or the polyurethanes or polyureas or polyurea-urethanes, may be, in one embodiment, apolar oils, such as an oil or a mixture of hydrocarbon oils chosen from those of mineral and synthetic origin, chosen from hydrocarbons such as alkanes such as Parleam® oil, isoparaffins including isododecane, and squalane, and mixtures thereof. These oils may, in one embodiment, be combined with at least one phenylsilicone oil.

The liquid fatty phase, in one embodiment, contains at least one non-volatile oil chosen from, for example, hydrocarbon-based oils of mineral, plant and synthetic origin, synthetic esters or ethers, silicone oils and mixtures thereof.

In practice, the total liquid fatty phase may be present, for example, in an amount ranging from 1% to 99% by weight relative to the total weight of the composition; further examples include ranges of 5% to 99%, 5% to 95.5%, 10% to 80%, and 20% to 75%.

For the purposes of the invention, the expression "volatile solvent or oil" means any non-aqueous medium capable of evaporating on contact with the skin or the lips in less than one hour at room temperature and atmospheric pressure. The volatile solvent(s) of the invention is(are) organic solvents, such as volatile cosmetic oils that are liquid at room temperature, having a non-zero vapor pressure, at room temperature and atmospheric pressure, ranging

in particular from 10^{-2} to 300 mmHg (1.33 to 40 000 Pa) and, for example, greater than 0.03 mmHg (40 Pa) and for example greater than 0.3 mmHg (40 Pa). The expression "non-volatile oil" means an oil which remains on the skin or the lips at room temperature and atmospheric pressure for at least several hours, such as those having a vapor pressure of less than 10^{-2} mmHg (1.33 Pa).

According to the invention, these volatile solvents may facilitate the staying power or long wearing properties of the composition on the skin, the lips or superficial body growths such as nails and keratineous fibers. The solvents can be chosen from hydrocarbon-based solvents, silicone solvents optionally comprising alkyl or alkoxy groups that are pendant or at the end of a silicone chain, and a mixture of these solvents.

The volatile oil(s), in one embodiment, is present in an amount ranging from 0% to 95.5% relative to the total weight of the composition, such as from 2% to 75% or, for example, from 10% to 45%. This amount will be adapted by a person skilled in the art according to the desired staying power or long wearing properties.

In one embodiment, the compositions of the invention are anhydrous. The at least one liquid fatty phase of the composition of the invention may further comprises a dispersion of lipid vesicles. The composition of the invention may also, for example, be in the form of a fluid anhydrous gel, a rigid anhydrous gel, a fluid simple emulsion, a fluid multiple emulsion, a rigid simple emulsion or a rigid multiple emulsion. The simple emulsion or multiple emulsion may comprise a continuous phase chosen from an aqueous phase optionally containing dispersed lipid vesicles, or a fatty phase optionally containing dispersed lipid vesicles. In one embodiment, the composition has a continuous oily phase or fatty phase and is more specifically an anhydrous composition, for example, a stick or dish form. An anhydrous composition is one that has less than 10% water by weight, such as, for example, less than 5% by weight.

Additional additive

The compositions of the invention may further comprise at least one additional fatty material. The at least one additional fatty material may, for example, be chosen from gums, liposoluble or lipodispersible gelling agents, fatty materials pasty or viscous at ambient temperature, and resins.

The composition of the present invention may also further comprise at least one suitable additive commonly used in the field concerned chosen from coloring agents, antioxidants, essential oils, preserving agents, fragrances,

neutralizing agents, liposoluble polymers, dispersants and cosmetically active agents and dermatological active agents such as, for example, emollients, moisturizers, vitamins, essential fatty acids and sunscreens, and mixtures thereof. The at least one additive is generally present in a concentration ranging up to 20% by weight of the total weight of the composition, such as up to 10%, for example from 0.01 to 10%. The compositions of the present invention may also further comprise water, water, optionally thickened with an aqueous-phase thickener, or gelled with a hydrophilic gelling agent and/or containing ingredients soluble in water. The water can represents form 0.01% to 50% for example from 0.5% to 30% relative to the total weight of the composition.

The composition can also contains at least one active agent, i.e. an agent having a beneficial effect on the skin, lips or body growths.

Needless to say, the person skilled in the art will take care to select the optional additional additives and the amount thereof such that at least one advantageous property of the composition according to the invention, such as stability, non-migration, is not, or is not substantially, adversely affected by the addition(s) envisaged.

The composition according to the invention can be in the form of a tinted or non tinted care composition for keratin materials such as the skin, the lips and superficial body growths. Then it can be used, for example, as a care base for the skin, superficial body growths or the lips, for example, lips balms for protecting the lips against cold and/or sunlight and/or wind, or care cream for the skin (body and face).

The composition of the invention may be also in the form of a colored make-up product for the skin, such as a foundation, an eyeshadow, a concealer, an eyeliner, a make-up for the body ; a make-up for the lips such as lipgloss or lipstick ; a make-up for eyelashes, for example in a form of mascara cake, or for the eyebrows, for example in the form of pencil.

The compositions of the invention may also comprise at least one coloring agent chosen from pigments, dyes, nacreous pigments (i.e. nacres), and pearling agents. The at least one coloring agent may be chosen, for example, in order to obtain make-up compositions which give good coverage, that is, which do not leave a significant amount of the at least one keratin material to which it is applied showing through. The pigments may also reduce the sticky feel of the compositions, unlike soluble dyes.

Representative liposoluble dyes which may be used according to the present invention include Sudan red, DC Red 17, DC Green 6, β -carotene,

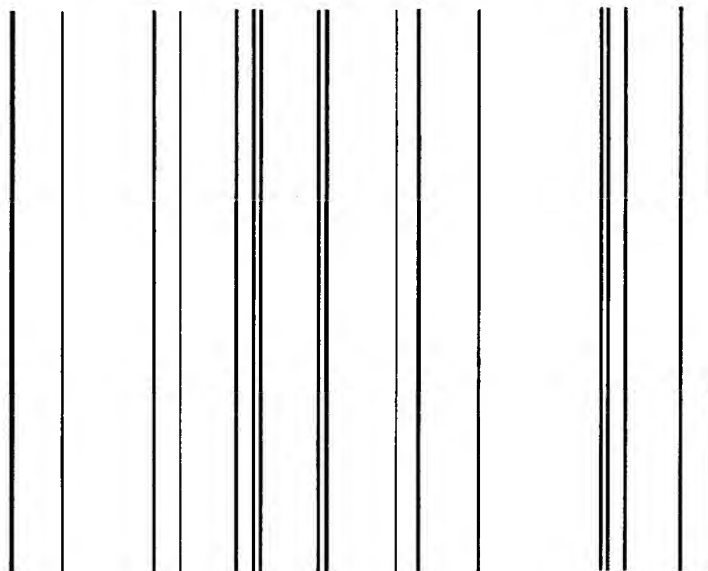
soybean oil, Sudan brown, DC Yellow 11, DC Violet 2, DC Orange 5, annatto, and quinoline yellow. The liposoluble dyes, when present, generally have a concentration ranging up to 20% by weight of the total weight of the composition, such as from 0.1% to 6%.

The pigments which may be used according to the present invention may be chosen from white, colored, mineral, organic, coated and uncoated pigments. Representative examples of mineral pigments include titanium dioxide, optionally surface-treated, zirconium oxide, zinc oxide, cerium oxide, iron oxides, chromium oxides, manganese violet, ultramarine blue, chromium hydrate and ferric blue. Representative examples of organic pigments include carbon black, pigments of D & C type, and lakes based on cochineal carmine, barium, strontium, calcium and aluminum. If present, the pigments may have a concentration ranging up to 40% by weight of the total weight of the composition, and for example up to 50%, such as from 1% to 35%, and further such as from 2% to 25%. In the case of a face powder product, the pigments, including nacreous pigments, may, for example, represent up to 90% by weight of the composition.

The nacreous pigments (or nacres) which may be used according to the present invention may be chosen from white nacreous pigments such as mica coated with titanium or with bismuth oxychloride, colored nacreous pigments such as titanium mica with iron oxides, titanium mica with ferric blue or chromium oxide, titanium mica with an organic pigment chosen from those mentioned above, and nacreous pigments based on bismuth oxychloride. The nacres, if present, may have a concentration ranging up to 30% by weight of the total weight of the composition, such as from 0.1% to 20%.

In one embodiment, the coloring agents is a pigment (nacreous or not).

The composition according to the present invention may be manufactured by one of ordinary skill in the art. For example, they may be manufactured by a process which comprises heating the at least one structuring polymer at



comprising the application to a keratin material of a cosmetic composition comprising a liquid fatty phase comprising at least one structuring polymer, as defined herein, such as at least one structuring polymer comprising a polyamide skeleton. The polyamide skeleton comprises at least one end group with at least one chain chosen from alkyl chains comprising at least four carbon atoms and alkenyl chains comprising at least four carbon atoms, bonded to the at least one polyamide skeleton via at least one linking group. The polyamide skeleton may comprise at least one pendant group with at least one chain chosen from alkyl chains, for example, alkyl chains comprising at least four carbon atoms, and alkenyl chains, for example, alkenyl chains comprising at least four carbon atoms, bonded to any carbon or nitrogen of the polyamide skeleton via at least one linking group. The polyamide skeleton may also comprise at least one said end group and at least one said pendant group. The at least one structuring polymer is present in an amount effective to provide structure to said fatty phase. The composition further comprises at least one solid substance that has a melting point of about 45°C, for example about 47°C, or greater. The at least one structuring polymer and the at least one solid substance are present in a combined amount to provide the composition with stability, as previously defined herein.

In another embodiment, the present invention is directed to a process of making a cosmetic composition in the form of a physiologically acceptable composition comprising including in said composition at least one liquid fatty phase, said at least one liquid fatty phase being structured with at least one structuring polymer composition comprising a polyamide skeleton. The polyamide skeleton comprises at least one end group with at least one chain chosen from alkyl chains, for example alkyl chains comprising at least four carbon atoms and alkenyl chains, for example alkenyl chains comprising at least four carbon atoms, bonded to the at least one polyamide skeleton via at least one linking group. The polyamide skeleton may further comprise at least one pendant group with at least one chain chosen from alkyl chains, for example, alkyl chains comprising at least four carbon atoms and alkenyl chains, for example alkenyl chains comprising at least four carbon atoms, bonded to any carbon or nitrogen of the polyamide skeleton via at least one linking group. The at least one structuring polymer is present in an amount effective to provide structure to said fatty phase. The composition further comprises at least one solid substance that has a melting point of about 45°C, for example about 47°C, or greater. The at least one structuring polymer and

the at least one solid substance are present in a combined amount to provide the composition with stability, as previously defined herein.

The invention will be illustrated by, but is not intended to be limited to, the following examples. The amount are given a percentage by mass.

Example 1: Anhydrous Compact Foundation

An anhydrous compact composition was prepared using the following ingredients.

Isostearyl Neopentanoate	qsp 100 %
Isononyl Isononanoate	15 %
Iron Oxides	3.4 %
Titanium Dioxide Anatase Form	10.6 %
Methylparaben	0.2 %
Talc	8.3 %
Kaolin	3 %
Titanium Dioxide treated with Dimethicone	5 %
Polyethylene wax MW 500 (weight avg. molecular weight)	5.7 %
Uniclear 100	7.4 %
Polymethyl Methacrylate	4 %
PTFE	4 %
Octyldodecanol	4.4 %

Preparation: The Uniclear 100 was solubilized (or dissolved), at 100°C, in a mixture of melted oils and wax, followed by addition of the pigments and fillers. The whole was mixed using a deflocculating turbomixer (Raynerie).

The stability of the composition was tested using the test described herein. The composition was found to have good stability in that there was no exudation at room temperature, at 45°C and at 47°C, both at one month and at eight weeks.

Example 2: Lip Stick

A lip stick composition was prepared using the following ingredients.

Isononyl Isononanoate	qsp 100	%
Uniclear 100	15	%
Diisostearyl Malate	12	%
Polyethylene wax	12	%
Polyglyceryl-2 Diisostearate	5.9	%
Iron Oxides	4	%

Nylon-12	4	%
Red 7 Lake	1.8	%
Titanium Dioxide	1.2	%
Barium Sulfate	0.6	%
Rosin / Colophonium	0.6	%

Preparation: The Uniclear 100 was solubilized (or dissolved), at 100°C, in a mixture of melted oils and wax, followed by addition of the pigments and fillers. The whole was mixed using a deflocculating turbomixer (Raynerie) and then case in lipstick molds.

The stability of the composition was tested using the test described herein. The composition was found to have good stability in that there was no exudation at room temperature, at 45°C and at 47°C, both at one month and at eight weeks.

Example 3: Lip Stick

A lip stick composition was prepared using the following ingredients.

PHASE A

Uniclear 100	16	%
Carnauba wax	13	%
Isononyl isononanoate	13	%
Di-isostearylmalate	9	%

PHASE B

Hydrophobic silica	3	%
Hydrogenated poly isobutene	10.36	%
Actyldodecanol	3.52	%

PHASE C

Pigments	12	%
Liquid lanolin	14	%
Hydrogenated poly isobutene	4.64	%
Octyldodecanol	1.48	%

Procedure: The Uniclear 100 and the oils of phase A were introduced into a heating vessel. The mixture was placed under magnetic stirring and then heated in a first stage to 100°C (to liquefy the Uniclear). A mixture comprising the silica gel (phase B), prepared beforehand, and the ground pigmentary material (phase C), which was heated beforehand to 100°C and homogenized

with stirring, was introduced. The product obtained was placed in a heated mold ($T^{\circ} = 45^{\circ}\text{C}$) with stirring and, once setting had begun, was placed in a freezer ($T^{\circ} = -21^{\circ}\text{C}$) for 15 minutes.

a) Silica gel (phase B)

The gel was prepared, with stirring, in a Rayneri stirrer at 60°C , using a hotplate, by introducing the silica portionwise into the oily mixture formed from the other phase B ingredients

b) Ground pigmentary material (phase C)

The pigments were mixed with the oil heated to 60°C ; the mixture was ground 3 times in a three-roll mill.

The sticks of lipstick had a hardness of 86 ± 5 gf measured using a "cheese wire". These sticks of lipstick broke during the measurement of the dynamic fragility carried out on 3 sticks. The fragility of the composition is determined by a method wherein the stick is submitted to several back-and-forth movements on a support for 3 minutes at a speed of 60 back-and-forth movements/minute, at 20°C . The result is defined by the number of broken sticks with respect to the number of tested sticks.

We claim:

1. A composition comprising at least one liquid fatty phase which comprises:
 - (i) at least one structuring polymer comprising:
a polymer skeleton which comprises at least one hydrocarbon-based repeating unit comprising at least one hetero atom; and
 - (ii) at least one solid substance that has a melting point of about 45°C or greater,
wherein said at least one solid substance is not stearalkonium hectorite, silica, talc or paraffin wax.
2. A composition comprising at least one liquid fatty phase which comprises:
 - (i) at least one structuring polymer comprising:
a polymer skeleton which comprises at least one hydrocarbon-based repeating unit comprising at least one hetero atom; and at least one terminal fatty chain chosen from alkyl chains and alkenyl chains, wherein said at least one terminal fatty chain is bonded to said polymer skeleton via at least one linking group; and
 - (ii) at least one solid substance that has a melting point of about 45°C or greater.
3. The composition according to claim 1 or 2, wherein the composition is in a form chosen from a fluid anhydrous gel, rigid anhydrous gel, fluid simple emulsion, rigid simple emulsion, fluid multiple emulsion, and rigid multiple emulsion.
4. The composition according to one of claims 1 to 3, wherein said composition is anhydrous.
5. An anhydrous composition comprising at least one liquid fatty phase which comprises:
 - (i) at least one structuring polymer comprising:
a polymer skeleton which comprises at least one hydrocarbon-based repeating unit comprising at least one hetero atom; and
 - (ii) at least one solid substance that has a melting point of about 45°C or greater,
wherein said at least one solid substance is not stearalkonium hectorite.
6. The composition according to one of claims 1 to 5, wherein said at least one structuring polymer further comprises at least one of:

at least one terminal fatty chain chosen from alkyl chains and alkenyl chains, wherein said at least one terminal fatty chain is bonded to said polymer skeleton via at least one linking group; and

at least one pendant fatty chain chosen from alkyl chains and alkenyl chains, wherein said at least one pendant fatty chain is bonded to said polymer skeleton via at least one linking group.

7. The composition according to claim 6, wherein said alkyl chains and said alkenyl chains each comprise at least four carbon atoms.

8. The composition according to claim 6 or 7, wherein said alkyl chains and said alkenyl chains each comprise from 8 to 120 carbon atoms.

9. The composition according to one of claims 6 to 8, wherein said alkyl chains and said alkenyl chains each comprise from 12 to 68 carbon atoms.

10. The composition according to one of claims 6 to 9, wherein said at least one linking group is chosen from single bonds and urea, urethane, thiourea, thiourethane, thioether, thioester, ester, ether and amine groups.

11. The composition according to one of claims 6 to 10, wherein said at least one linking group is an ester group present in a proportion ranging from 15% to 40% of the total number of all ester and hetero atom groups in the at least one structuring polymer.

12. The composition according to one of claims 6 to 11, wherein said at least one linking group is chosen from ester and amine groups.

13. The composition according to one of claims 6 to 12, wherein said at least one linking group is an ester group present in a proportion ranging from 20% to 35% of the total number of all ester and hetero atom groups in the at least one structuring polymer.

14. The composition according to one of claims 6 to 13, wherein said at least one terminal fatty chain is functionalized.

15. The composition according to one of claims 6 to 14, wherein said at least one pendant fatty chain is functionalized.

16. The composition according to one of claims 6 to 15, wherein in said at least one structuring polymer, the percentage of the total number of fatty chains ranges from 40% to 98% relative to the total number of all repeating units and fatty chains in the at least one structuring polymer.

17. The composition according to one of claims 6 to 16, wherein in said at least one structuring polymer, the percentage of the total number of fatty chains ranges from 50% to 95% relative to the total number of all repeating units and fatty chains in the at least one structuring polymer.

18. The composition according to one of claims 1 to 17, wherein said at least one hydrocarbon based repeating unit comprises from 2 to 80 carbon atoms..

19. The composition according to one of claims 1 to 18, wherein said at least one hetero atom of said at least one hydrocarbon-based repeating unit is chosen from nitrogen, sulphur, and phosphorus.

20. The composition according to one of claims 1 to 19, wherein said at least one hetero atom is a nitrogen atom.

21. The composition according to one of claims 1 to 20, wherein said at least one hetero atom is combined with at least one atom chosen from oxygen and carbon to form a hetero atom group.

22. The composition according to claim 21, wherein said at least one hetero atom group is chosen from amide groups, carbamate groups, and urea groups.

23. The composition according to claim 21 or 22, wherein said at least one hetero atom group is an amide group and said polymer skeleton is a polyamide skeleton.

24. The composition according to claim 21 or 22, wherein said at least one hetero atom group is chosen from carbamate groups and urea groups and said polymer skeleton is chosen from a polyurethane skeleton, a polyurea skeleton and a polyurethane-polyurea skeleton.

25. A composition comprising at least one liquid fatty phase which comprises:

(i) at least one structuring polymer, wherein said at least one structuring polymer is at least one polyamide polymer comprising:

a polymer skeleton which comprises at least one amide repeating unit; and

(ii) at least one solid substance that has a melting point of about 45°C or greater,

wherein said at least one solid substance is not stearalkonium hectorite, silica, talc or paraffin wax.

26. The composition according to claim 25, wherein said at least one polyamide polymer further comprises at least one of:

at least one terminal fatty chain chosen from alkyl chains and alkenyl chains, wherein said at least one terminal fatty chain is bonded to said polymer skeleton via at least one linking group; and

at least one pendant fatty chain chosen from alkyl chains and alkenyl chains, wherein said at least one pendant fatty chain is bonded to said polymer skeleton via at least one linking group.

27. The composition according to claim 26, wherein said alkyl chains and said alkenyl chains each comprise at least four carbon atoms.

28. The composition according to claim 26 or 27, wherein said alkyl chains and said alkenyl chains each comprise from 8 to 120 carbon atoms.

29. The composition according to one of claims 26 to 28, wherein said alkyl chains and said alkenyl chains each comprise from 12 to 68 carbon atoms.

30. The composition according to one of claims 26 to 29, wherein said at least one linking group is chosen from single bonds and urea, urethane, thiourea, thiourethane, thioether, thioester, ester, ether and amine groups.

31. The composition according to one of claims 26 to 30, wherein said at least one linking group is chosen from ester and amine groups.

32. The composition according to one of claims 26 to 31, wherein said at least one linking group is an ester group present in a proportion ranging from 15% to 40% of the total number of all ester and amide groups in the at least one polyamide polymer.

33. The composition according to one of claims 26 to 32, wherein said at least one linking group is an ester group present in a proportion ranging from 20% to 35% of the total number of all ester and amide groups in the at least one polyamide polymer.

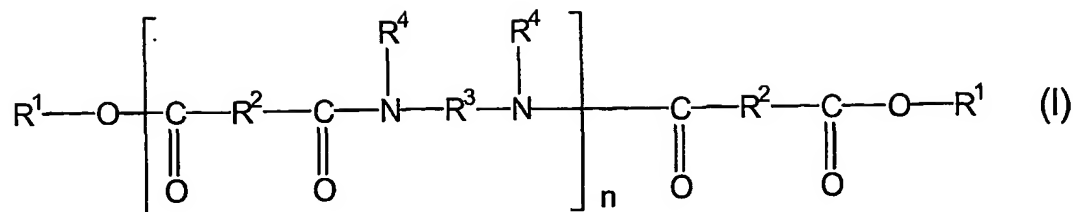
34. The composition according to one of claims 26 to 33, wherein said at least one terminal fatty chain is functionalized.

35. The composition according to one of claims 26 to 34, wherein said at least one pendant fatty chain is functionalized.

36. The composition according to one of claims 26 to 35, wherein in said at least one polyamide polymer, the percentage of the total number of fatty chains ranges from 40% to 98% relative to the total number of all amide units and fatty chains in the at least one polyamide polymer.

37. The composition according to one of claims 26 to 36, wherein in said at least one polyamide polymer, the percentage of the total number of fatty chains ranges from 50% to 95% relative to the total number of all amide units and fatty chains in the at least one polyamide polymer.

38. The composition according to one of claims 1 to 23 and 25 to 37, wherein said at least one structuring polymer is chosen from polyamide polymers of formula (I):



in which:

- n is an integer which represents the number of amide units such that the number of ester groups present in said at least one polyamide polymer ranges from 10% to 50% of the total number of all ester groups and all amide groups comprised in said at least one polyamide polymer;
- R^1 , which are identical or different, are each chosen from alkyl groups comprising at least 4 carbon atoms and alkenyl groups comprising at least 4 carbon atoms;
- R^2 , which are identical or different, are each chosen from C_4 to C_{42} hydrocarbon-based groups with the proviso that at least 50% of all R^2 are chosen from C_{30} to C_{42} hydrocarbon-based groups;
- R^3 , which are identical or different, are each chosen from organic groups comprising atoms chosen from carbon atoms, hydrogen atoms, oxygen atoms and nitrogen atoms, with the proviso that R^3 comprises at least 2 carbon atoms; and
- R^4 , which are identical or different, are each chosen from hydrogen atoms, C_1 to C_{10} alkyl groups and a direct bond to at least one group chosen from R^3 and another R^4 such that when said at least one group is chosen from another R^4 , the nitrogen atom to which both R^3 and R^4 are bonded forms part of a heterocyclic structure defined in part by R^4-N-R^3 , with the proviso that at least 50% of all R^4 are chosen from hydrogen atoms.

39. The composition according to claim 38, wherein in said formula (I), n is an integer ranging from 1 to 5.

40. The composition according to claim 38 or 39, wherein in said formula (I), said alkyl groups of R^1 and said alkenyl groups of R^1 each independently comprise from 4 to 24 carbon atoms.

41. The composition according to one of claims 38 to 40, wherein in said formula (I), R^1 , which are identical or different, are each chosen from C_{12} to C_{22} alkyl groups.

42. The composition according to one of claims 38 to 41, wherein in said formula (I), R^1 , which are identical or different, are each chosen from C_{16} to C_{22} alkyl groups.

43. The composition according to one of claims 38 to 42, wherein in said formula (I), R^2 , which are identical or different, are each chosen from C_{10}

to C₄₂ hydrocarbon based groups with the proviso that at least 50% of all R² are chosen from C₃₀ to C₄₂ hydrocarbon based groups.

44. The composition according to one of claims 38 to 43, wherein in said formula (I), R³, which can be identical or different, are each chosen from C₂ to C₃₆ hydrocarbon-based groups and polyoxyalkylene groups.

45. The composition according to one of claims 38 to 44, wherein R³, which can be identical or different, are each chosen from C₂ to C₁₂ hydrocarbon-based groups.

46. The composition according to one of claims 38 to 45, wherein in said formula (I), R⁴, which can be identical or different, are each chosen from hydrogen atoms.

47. The composition according to one of claims 38 to 46, wherein said at least one polymer of formula (I) is in the form of a mixture of polymers, wherein said mixture optionally also comprises a compound of formula (I) wherein n is equal to zero.

48. The composition according to one of claims 1 to 47, wherein said at least one structuring polymer has a weight-average molecular mass of less than 100,000.

49. The composition according to one of claims 1 to 48, wherein said at least one structuring polymer has a weight-average molecular mass of less than 50,000.

50. The composition according to one of claims 1 to 49, wherein said at least one structuring polymer has a weight-average molecular mass ranging from 1000 to 30,000.

51. The composition according to one of claims 1 to 50, wherein said at least one structuring polymer has a softening point greater than 50°C.

52. The composition according to one of claims 1 to 51, wherein said at least one structuring polymer has a softening point less than 150°C.

53. The composition according to one of claims 1 to 52, wherein said at least one structuring polymer has a softening point ranging from 70°C to 130°C.

54. The composition according to one of claims 1 to 53, wherein said at least one structuring polymer is present in the composition in an amount ranging from 0.5% to 80% by weight relative to the total weight of the composition.

55. The composition according to one of claims 1 to 54, wherein said at least one structuring polymer is present in the composition in an amount

ranging from 2% to 60% by weight relative to the total weight of the composition.

56. The composition according to one of claims 1 to 55, wherein said at least one structuring polymer is present in the composition in an amount ranging from 5% to 40% by weight relative to the total weight of the composition.

57. The composition according to one of claims 1 to 56, wherein said composition has a hardness ranging from 30 gf to 300 gf.

58. The composition according to one of claims 1 to 57, wherein said composition has a hardness ranging from 30 gf to 250 gf.

59. The composition according one of claims 1 to 58, wherein said at least one liquid fatty phase of the composition comprises at least one oil chosen from at least one polar oil and at least one apolar oil having an affinity with said at least one structuring polymer.

60. The composition according to claim 59, wherein said at least one polar oil is chosen from:

- hydrocarbon-based plant oils with a high content of triglycerides comprising fatty acid esters of glycerol in which the fatty acids comprise chains having from 4 to 24 carbon atoms, said chains optionally being chosen from linear and branched, and saturated and unsaturated chains;
- synthetic oils or esters of formula R_5COOR_6 in which R_5 is chosen from linear and branched fatty acid residues comprising from 1 to 40 carbon atoms and R_6 represents an alkyl groups having from 1 to 40 carbon atoms, with the proviso that $R_5 + R_6 \geq 10$;
- synthetic ethers containing from 10 to 40 carbon atoms;
- C_8 to C_{26} fatty alcohols; and
- C_8 to C_{26} fatty acids.

61. The composition according to claim 59, wherein said at least one apolar oil is chosen from:

- silicone oils chosen from volatile and non-volatile, linear and cyclic polydimethylsiloxanes that are liquid at room temperature;
- polydimethylsiloxanes comprising alkyl or alkoxy groups which are pendant and/or at the end of the silicone chain, the groups each containing from 2 to 24 carbon atoms;
- phenylsilicones; and
- hydrocarbons chosen from linear and branched, volatile and non-volatile hydrocarbons of synthetic and mineral origin,

62. The composition according to one of claim 1 to 61, wherein said at least one liquid fatty phase comprises at least one non-volatile oil.

63. The composition according to one of claim 1 to 62, wherein said at least one liquid fatty phase is present in an amount ranging from 1% to 99% by weight relative to the total weight of the composition.

64. The composition according to one of claim 1 to 63, wherein said at least one liquid fatty phase is present in an amount ranging from 10% to 80% by weight relative to the total weight of the composition.

65. The composition according to one of claim 1 to 64, wherein said at least one liquid fatty phase comprises at least one volatile solvent chosen from hydrocarbon-based solvents and silicone solvents optionally comprising alkyl or alkoxy groups that are pendant or at the end of a silicone chain.

66. The composition according to one of claim 1 to 65, wherein said at least one solid substance has a melting point of about 50°C or greater.

67. The composition according to one of claim 1 to 66, wherein said at least one solid substance has a melting point ranging from about 50°C to about 150°C.

68. The composition according to one of claim 1 to 67, wherein said at least one solid substance has a melting point ranging from about 60°C to about 130°C.

69. The composition according to one of claim 1 to 68, wherein said at least one solid substance comprises at least one crystallizable portion.

70. The composition according to one of claim 1 to 69, wherein said at least one solid substance is chosen from waxes, fillers, glitters, and solid polymers.

71. The composition according to claim 70, wherein said waxes are chosen from carnauba wax, candellila wax, candelilla wax, ouricury wax, Japan wax, cork fiber wax, sugar cane wax, lignite wax, microcrystalline waxes, lanolin wax, montan wax, polyethylene waxes, waxes obtained by Fischer-Tropsch synthesis, and silicone waxes.

72. The composition according to one of claim 1 to 71, wherein said at least one solid substance is present at a concentration of at least 5% relative to the total weight of said composition.

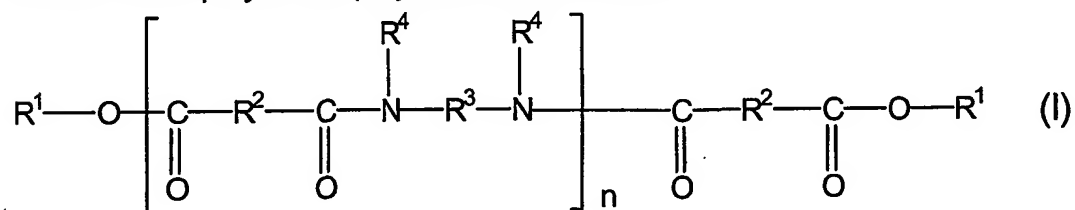
73. The composition according to one of claim 1 to 72, wherein said at least one solid substance is present at a concentration ranging from 10% to 70% relative to the total weight of the composition.

74. The composition according to one of claim 1 to 73, wherein said at least one solid substance is present at a concentration ranging from 10% to 50% relative to the total weight of the composition.

75. The composition according to one of claim 1 to 74, wherein said composition is a solid.

76. The composition according to one of claim 1 to 75, wherein said composition is a solid chosen from molded and poured sticks.

77. A structured composition comprising at least one liquid fatty phase structured with at least one structuring polymer, wherein said polymer is chosen from polyamide polymers of formula (I) :



in which:

- n is an integer which represents the number of amide units such that the number of ester groups present in said at least one polyamide polymer ranges from 10% to 50% of the total number of all ester groups and all amide groups comprised in said at least one polyamide polymer;
- R¹, which are identical or different, are each chosen from alkyl groups comprising at least 4 carbon atoms and alkenyl groups comprising at least 4 carbon atoms;
- R², which are identical or different, are each chosen from C₄ to C₄₂ hydrocarbon-based groups with the proviso that at least 50% of all R² are chosen from C₃₀ to C₄₂ hydrocarbon-based groups;
- R³, which are identical or different, are each chosen from organic groups comprising atoms chosen from carbon atoms, hydrogen atoms, oxygen atoms and nitrogen atoms, with the proviso that R³ comprises at least 2 carbon atoms; and
- R⁴, which are identical or different, are each chosen from hydrogen atoms, C₁ to C₁₀ alkyl groups and a direct bond to at least one group chosen from R³ and another R⁴ such that when said at least one group is chosen from another R⁴, the nitrogen atom to which both R³ and R⁴ are bonded forms part of a heterocyclic structure defined in part by R⁴-N-R³, with the proviso that at least 50% of all R⁴ are chosen from hydrogen atoms.

78. The composition according to claim 77 wherein in said formula (I) n is an integer from 1 to 5.

79. The composition according to one claims 25 to 53 and 77, wherein said at least one polyamide polymer is chosen from polymers resulting from at least one polycondensation reaction between at least one dicarboxylic acid comprising at least 32 carbon atoms and at least one amine chosen from diamines comprising at least 2 carbon atoms and triamines comprising at least 2 carbon atoms.

80. The composition according to claim 79, wherein said at least one dicarboxylic acid comprises from 32 to 44 carbon atoms and said at least one amine comprises from 2 to 36 carbon atoms.

81. The composition according to claim 79 or 80, wherein said at least one dicarboxylic acid is chosen from dimers of at least one fatty acid comprising at least 16 carbon atoms.

82. The composition according to claim 81, wherein said at least one fatty acid is chosen from oleic acid, linoleic acid and linolenic acid.

83. The composition according to one of claims 79 to 82, wherein said at least one amine is chosen from ethylenediamine, hexylenediamine, hexamethylenediamine, phenylenediamine and ethylenetriamine.

84. The composition according to one of claims 79 to 83, wherein said at least one polyamide polymer is chosen from polymers comprising at least one terminal carboxylic acid group.

85. The composition according to claim 84, wherein said at least one terminal carboxylic acid group is esterified with at least one alcohol chosen from monoalcohols comprising at least 4 carbon atoms.

86. A mascara, an eyeliner, a foundation, a lipstick, a blusher, a make-up-removing product, a make-up product for the body, an eyeshadow, a face powder, a concealer product, a shampoo, a conditioner, an antisen product or a care product for the skin, lips or hair comprising a composition comprising at least one liquid fatty phase in said mascara, eyeliner, foundation, lipstick, blusher, make-up-removing product, make-up product for the body, eyeshadow, face powder, concealer product, shampoo, conditioner, antisen product or care product for the skin, lips or hair which comprises:

(i) at least one structuring polymer comprising:

a polymer skeleton which comprises at least one hydrocarbon-based repeating unit comprising at least one hetero atom; and

(ii) at least one solid substance that has a melting point of about 45°C or greater.

87. The composition according to claim 86, wherein said composition is a solid.

88. An anhydrous deodorant comprising:
 at least one liquid fatty phase which comprises:
 (i) at least one structuring polymer comprising:
 a polymer skeleton which comprises at least one hydrocarbon-based repeating unit comprising at least one hetero atom; and
 (ii) at least one solid substance that has a melting point of about 45°C or greater.

89. The composition according to claim 88, wherein said composition is a solid.

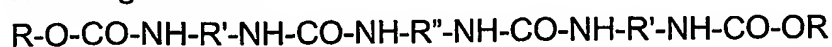
90. A make-up and/or care and/or treatment composition for keratinous fibers comprising:

at least one liquid fatty phase which comprises:
 (i) at least one structuring polymer comprising:
 a polymer skeleton which comprises at least one hydrocarbon-based repeating unit comprising at least one hetero atom; and
 (ii) at least one solid substance that has a melting point of about 45°C or greater.

91. A lipstick composition in stick form comprising at least one continuous liquid fatty phase, at least one solid substance that has a melting point of about 45°C or greater, and at least one non-waxy structuring polymer having a weight-average molecular mass of less than 100,000, said at least one continuous liquid fatty phase, said at least one solid substance, and said at least one non-waxy structuring polymer being present in said lipstick composition.

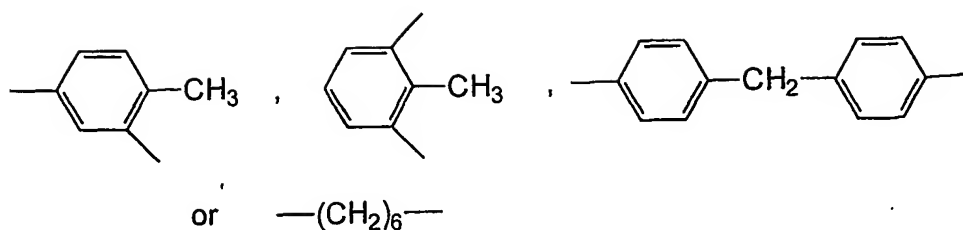
92. A composition comprising at least one liquid fatty phase which comprises:

(i) at least one structuring polymer chosen from urea urethanes having the following formula:

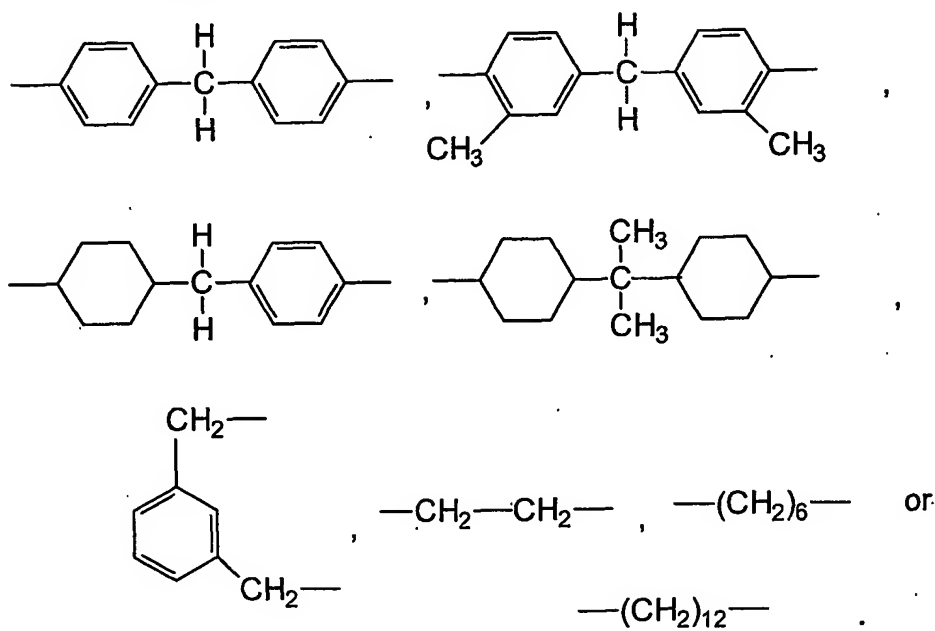


wherein R represents $\text{C}_n\text{H}_{2n+1}-$, wherein n represents an integer having a value greater than 22 or $\text{C}_m\text{H}_{2m+1}(\text{OC}_p\text{H}_{2p})_r-$, wherein m represents an integer having a value of greater than 18, p represents an integer having a value of from 2 to 4, and r represents an integer having a value of from 1 to 10.

R' represents:



and R'' represents:



(ii) at least one solid substance that has a melting point of about 45°C or greater.

93. A make up, care, or treatment composition for the skin or lips comprising a structured composition comprising at least one liquid fatty phase structured with at least one structuring polymer comprising a polymer skeleton which comprises at least one hydrocarbon-based repeating unit comprising at least one hetero atom, at least one solid substance that has a melting point of about 45°C or greater, and at least one coloring agent.

94. A treatment, care or make-up composition for keratinous fibers comprising a structured composition containing at least one liquid fatty phase structured with at least one structuring polymer comprising a polymer skeleton comprising at least one hydrocarbon-based repeating unit comprising at least one hetero atom, at least one solid substance that has a melting point of about 45°C or greater, and at least one coloring agent.

95. A structured composition comprising at least one liquid fatty phase structured with at least one structuring polymer comprising a polymer skeleton comprising at least one hydrocarbon-based repeating unit

comprising at least one hetero atom, wherein the at least one structuring polymer further comprises at least one terminal fatty chain, optionally functionalized, chosen from alkyl chains and alkenyl chains, wherein said at least one terminal fatty chain is bonded to said polymer skeleton via at least one linking group chosen from amides, ureas, and esters, wherein when said at least one linking group is chosen from esters, said at least one terminal fatty chain is chosen from branched alkyl groups and at least one solid substance that has a melting point of about 45°C or greater.

96. A composition according to claim 95, wherein said at least one structuring polymer may also comprise at least one pendant fatty chain, optionally functionalized, chosen from alkyl chains and alkenyl chains, wherein said at least one pendant fatty chain is bonded to said polymer skeleton via bonded to any carbon or hetero atom of the polymer skeleton via at least one linking group chosen from amides, ureas, and esters, wherein when said at least one linking group is chosen from esters, said at least one pendant fatty chain is chosen from branched alkyl groups.

97. A method for care, make up, or treatment of a keratin material chosen from lips, skin, and keratinous fibers, comprising the application to said keratin material of a cosmetic composition comprising:
at least one liquid fatty phase which comprises:

(i) at least one structuring polymer comprising:

a polymer skeleton which comprises at least one hydrocarbon-based repeating unit comprising at least one hetero atom; and

(ii) at least one solid substance that has a melting point of about 45°C or greater.

98. A method for making a cosmetic composition in the form of a physiologically acceptable composition comprising including in said composition at least one liquid fatty phase which comprises:

(i) at least one structuring polymer comprising:

a polymer skeleton which comprises at least one hydrocarbon-based repeating unit comprising at least one hetero atom; and

(ii) at least one solid substance that has a melting point of about 45°C or greater,

wherein said at least one solid substance is not stearylalkonium hectorite, silica, talc or paraffin wax.

99. A method for providing at least one of resistance to shear and stability to a cosmetic composition, comprising including in said cosmetic composition at least one liquid fatty phase which comprises:

(i) at least one structuring polymer comprising:

a polymer skeleton which comprises at least one hydrocarbon-based repeating unit comprising at least one hetero atom; and

(ii) at least one solid substance that has a melting point of about 45°C or greater, wherein said at least one solid substance is not stearylkonium hectorite, silica, talc or paraffin wax,

and further wherein said at least one structuring polymer and said at least one solid substance are present in a combined amount effective to provide at least one property chosen from resistance to shear and stability.

100. The composition according to one of claims 1 to 85, wherein said at least one solid substance has a melting point of about 47°C or greater.

101. An anhydrous composition comprising at least one liquid fatty phase which comprises:

(i) at least one structuring polymer comprising:

a polymer skeleton which comprises at least three hydrocarbon-based repeating units comprising at least one hetero atom; and

(ii) at least one solid substance that has a melting point of about 45°C.

102. An anhydrous composition according to claim 101, wherein said at least three hydrocarbon-based repeating units are identical.

103. A treatment, care or make-up composition for skin or lips comprising a structured composition containing at least one liquid fatty phase structured with at least one structuring polymer comprising a polymer skeleton comprising at least one hydrocarbon-based repeating unit comprising at least one hetero atom, and at least one solid substance that has a melting point of about 45°C or greater.

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- (81) Designated States (*national*): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW.
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- Published:**
— *with international search report*
— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments*
- (88) Date of publication of the international search report:
7 November 2002
- For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

(54) Title: COSMETIC COMPOSITION COMPRISING HETERO POLYMERS AND A SOLID SUBSTANCE AND METHOD OF USING SAME

(57) Abstract: Structured compositions comprising at least one liquid fatty phase structured with at least one structuring polymer and at least one solid substance that has a melting point of about 45°C. This invention may be in the form of stable sticks and may give a non-migrating deposit when applied.

WO 02/047608 A3

INTERNATIONAL SEARCH REPORT

onal Application No

PCT/IB 01/02804

A. CLASSIFICATION OF SUBJECT MATTER

IPC 7 A61K7/02 A61K7/025 A61K7/027

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A61K

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data, PAJ

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
P,X	EP 1 068 856 A (OREAL) 17 January 2001 (2001-01-17) page 4, paragraph 35 page 6, paragraph 51 page 9, paragraph 76; claims	1-103
X	US 4 871 536 A (ARRAUDEAU JEAN-PIERRE ET AL) 3 October 1989 (1989-10-03) claims 1,2,5,7-10; examples 1,7,8	1-103
X	US 6 103 249 A (ROULIER VERONIQUE ET AL) 15 August 2000 (2000-08-15) claims 1,6,20,21,39-41	1-103



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

* Special categories of cited documents :

- *A* document defining the general state of the art which is not considered to be of particular relevance
- *E* earlier document but published on or after the international filing date
- *L* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- *O* document referring to an oral disclosure, use, exhibition or other means
- *P* document published prior to the international filing date but later than the priority date claimed

T later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

X document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

Y document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

G document member of the same patent family

Date of the actual completion of the international search

28 August 2002

Date of mailing of the international search report

05/09/2002

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Authorized officer

Beyss, E

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB 01/02804

Box I Observations where certain claims were found unsearchable (Continuation of item 1 of first sheet)

This International Search Report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☒ Claims Nos.:
because they relate to parts of the International Application that do not comply with the prescribed requirements to such an extent that no meaningful International Search can be carried out, specifically:
see FURTHER INFORMATION sheet PCT/ISA/210
3. ☐ Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box II Observations where unity of invention is lacking (Continuation of item 2 of first sheet)

This International Searching Authority found multiple inventions in this International application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this International Search Report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this International Search Report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this International Search Report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

Continuation of Box I.2

Present claims 1-103 relate to an extremely large number of possible products. Support within the meaning of Article 6 PCT and/or disclosure within the meaning of Article 5 PCT is to be found, however, for only a very small proportion of the products claimed. In the present case, the claims so lack support, and the application so lacks disclosure, that a meaningful search over the whole of the claimed scope is impossible. Consequently, the search has been carried out for those parts of the claims which appear to be supported and disclosed, namely those parts relating to the products prepared in the examples 1-3.

The applicant's attention is drawn to the fact that claims, or parts of claims, relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure.

INTERNATIONAL SEARCH REPORT



Information on patent family members

International Application No

PCT/IB 01/02804

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
EP 1068856	A	17-01-2001	FR 2796271 A1	19-01-2001
			FR 2796272 A1	19-01-2001
			BR 0003279 A	13-03-2001
			CN 1295829 A	23-05-2001
			EP 1068856 A1	17-01-2001
			JP 2001064514 A	13-03-2001
US 4871536	A	03-10-1989	LU 84210 A1	07-03-1984
			AT 395676 B	25-02-1993
			AT 221083 A	15-07-1992
			AU 559588 B2	12-03-1987
			AU 1586183 A	22-12-1983
			BE 897050 A1	15-12-1983
			CA 1208832 A1	29-07-1986
			CH 658186 A5	31-10-1986
			DE 3321650 A1	22-12-1983
			FR 2528699 A1	23-12-1983
			GB 2123290 A , B	01-02-1984
			IT 1162880 B	01-04-1987
			JP 1764896 C	11-06-1993
			JP 4045484 B	27-07-1992
			JP 59007107 A	14-01-1984
			NL 8302171 A	16-01-1984
US 6103249	A	15-08-2000	FR 2734715 A1	06-12-1996
			FR 2734716 A1	06-12-1996
			BR 9608431 A	17-02-1999
			CA 2220401 A1	05-12-1996
			CN 1191479 A	26-08-1998
			DE 69600182 D1	16-04-1998
			DE 69600182 T2	13-08-1998
			DK 745376 T3	28-09-1998
			EP 0745376 A1	04-12-1996
			ES 2116809 T3	16-07-1998
			WO 9638126 A1	05-12-1996
			JP 3014458 B2	28-02-2000
			JP 10506643 T	30-06-1998
			PL 323623 A1	14-04-1998
			RU 2147221 C1	10-04-2000
			US 5897869 A	27-04-1999